

Remarks

This is the second submission that is being filed on October 15, 2007. Please disregard the submission filed earlier today at 2:32 PM (EDT) since that amendment did not contain the status of claims 1-26. This current submission includes a statement relating to the status of claims 1-26. Claims 1-26 have been cancelled.

The Examiner has issued a requirement for restriction in the office action mailed September 13, 2007.

In response to this requirement for restriction, Applicant has submitted this amendment.

In order to further clarify the invention being claimed and patentably distinguish the claimed invention from the cited prior art, Applicant has cancelled claims 1-26, and introduced new claims 27-38.

Claims 27-34 are drawn to a method for processing an image of a specimen or dental x-ray to identify a pathogen within the specimen or dental x-ray.

Claims 35-38 are drawn to a system for processing an image of a specimen or dental x-ray to identify a pathogen within the specimen or dental x-ray.

In the event the Examiner still maintains a restriction requirement, then Applicant elects claims 27-34 for examination.

Claim 27 incorporates most of the elements and limitations of original claims 1, 7, 8 and 9.

New claims 28, 29, 30, 31, 32, and 33 are the same as original claims 2, 3, 4, 5, 6 and 11, respectively.

The preamble of claim 27 is different than that of original claim 1 and reads as follows: "A method of processing an image of a specimen or dental x-ray to identify a pathogen within the specimen or dental x-ray". The features and elements that have been added to the preamble are based on the features in originally filed claims 1, 7 and 8.

New claim 27 includes the steps of:

"Providing a parallel processing computing platform";

"Implementing a recursive hierarchical segmentation algorithm on the parallel processing computing platform and processing the image with the recursive hierarchical segmentation algorithm to isolate at least one segment of the provided image that has a feature that is of interest"

The "parallel processing computing platform" is specifically referred to as "master node 208" in the specification of the present application. The specification states that the "master node 208 is configured to implement high-speed parallel processing" that implements and executes "the particular image processing and analysis computer program".

As stated in the disclosure of this present application, the identification of pathogens often takes days and involves complicated procedures. For example, the delay in identifying the presence of harmful bacteria in food products could result in contaminated products being released for distribution and consumption with dire consequences. In some instances, these delays have proved to be fatal

to people or have caused unnecessary suffering.

New claim 27 recites "a recursive hierarchical segmentation algorithm" that is implemented on a "parallel processing computing platform". These are very important and unique features of the invention. The prior art cited by the Examiner and cited in the International Search Report in the international application do not disclose, teach or suggest these features. The prior art image segmentation algorithms disclosed in Yoon do not employ any form of optimization in performing segmentations. Many of these prior art image segmentation algorithms are processor intensive. Thus, a large high-resolution high-bit image can take a very long time to undergo segmentation. An additional problem common to many of these prior art image segmentation algorithms is the requirement of large amounts of memory, making it likely that large images may require more memory than available, preventing large images from being segmented. However, implementation of the recursive hierarchical segmentation algorithm on a parallel processing computing platform, as recited in amended new claim 27, eliminates these disadvantages and problems of the prior art image segmentation algorithms. Furthermore, it has been found that using the "parallel processing computing platform" to implement "the recursive hierarchical segmentation algorithm", as recited in claim 27, results in high-speed and high-accuracy image segmentation. The prior art does not teach, disclose or suggest these features which are now recited in new claim 27.

New claim 27 also recites the steps of:

Processing the isolated segment with a data mining algorithm to extract particular image data from the isolated segment.

Processing the extracted particular image and each of the reference images with an optical recognition algorithm to determine if the extracted image data matches any of the reference images.

The use of a "data mining algorithm to extract particular image data" is not disclosed in the cited prior art patents. The cited prior art does not disclose, teach or suggest the "data mining algorithm" and an "optical recognition algorithm" as recited in new claim 27.

The combination of method steps recited in new claim 27 provides a unique, novel and inventive technical solution for the need for high-speed and high-accuracy image segmentation of images of specimens and dental x-rays.

The method of claim 27 is clearly not obvious from the disclosure of the cited prior art. Therefore, Applicant submits that new claims 27-34 are patentable over the cited prior art.

New claim 35 is based on originally filed claim 12 and also includes a new preamble that is similar to the preamble of new claim 27. New claim 35 incorporates the features and limitations of originally filed dependent claims 14, 16, 17, 18, 19, 20, 21, 22 and 23.

New dependent claims 36, 37 and 38 are based on originally filed claims 13, 15 and 24, respectively.

The system claimed in claim 35 is neither anticipated by nor obvious from the cited prior art. In particular, the cited prior art does not disclose a system that

(i) comprises a parallel processing computing platform, (ii) uses a recursive hierarchical segmentation algorithm, (iii) a data mining algorithm, and (iv) an optical recognition algorithm. All of these features are recited in new claim 35.

The combination of features recited in new claim 35 provides a unique, novel and inventive system that provides a technical solution for the critical need for high-speed and high-accuracy image segmentation of images of specimens and dental x-rays.

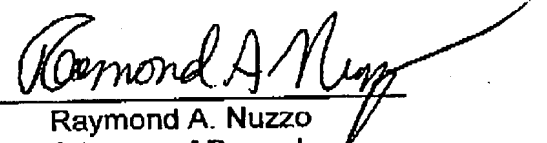
Applicant submits that new claims 27-38 are patentable over the cited prior art. Therefore, reconsideration and allowance of the claims of the instant application are therefore earnestly solicited.

Applicants encourage the Examiner to call the undersigned attorney if there is any matter or issue that can be resolved through a telephone conference.

Respectfully submitted,

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